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CENTRAL INTELLIGENCE AGENCY REPORT [redacted]

INFORMATION REPORT

CD NO. 25X1

COUNTRY	East Germany	DATE DISTR.	18 November 1955
SUBJECT	VEB Transformatoren- und Roentgenwerk Dresden (TuR) Production and Personnel	NO. OF PAGES	4
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[redacted] THIS IS UNEVALUATED INFORMATION 25X1

[redacted]

25X1

1. In March [redacted] Roentge[redacted] for a t[redacted] with dou[redacted] development of a tra[redacted]former for 3,000 kV[redacted] and 6 kV/1 MV has been completed. The transformer fitted with a double-concentric winding was to be much lighter than the older one and was to have a 30 to 35 percent higher efficiency. Measurements made on the new transformer showed favorable results. Before the transformer was built, a so-called "phantom", that is, a model of the transformer at reduced dimensions, was manufactured. Taking into consideration the smaller dimensions - usually the phantom was one-twentieth the size of the transformer to be built - the phantom had to yield the same results as the transformer itself. In the case of the transformer under development at the plant, the phantom tested proved less efficient than expected. The reason for this failure was unexplained. The weight of the transformer in standard size make will be 20 tons. On the basis of the previous design, the weight of such a transformer would have been 35 to 40 tons.

The transformer of cascade stages II and III of the testing installation were not yet completed.[1]

2. A betatron designed for a voltage o[redacted] of 1 r/m was also under development[redacted] successfully completed and the out[redacted] [redacted]h 1955. The betatron [redacted]

[redacted] Dr. Winter, efforts had been made to develop a similar betatron at the [redacted]y. In Jena, Professor Dr. Eckart trie[redacted] betatron for 1.2 megavolts with a cold cathod[redacted]ic circuit diagram of the impulse[redacted] development was unsuccessful becaus[redacted]enced [redacted] cathode. Pr[redacted] Eckart is said [redacted] a 30 megavolt betatron [redacted] principle applied by the Swiss firm of Brow[redacted]el-Ko[redacted] Dr. Winter was charged with devel[redacted] this betatron. The designs for th[redacted] at t[redacted] [redacted]

25X1

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25X1

obtaining suitable cathodes for t[redacted] by lack of suitable radiation mea[redacted] counters.

3. The following development work was also being conducted a[redacted] 25X1

a. Development of a van de Graaf generator for [redacted] with one accelerating tube. [redacted] 25X1

The generator was completed except for the accelerating tube. Work on the generator was suspended in February 1955 because of a shortage of funds. The generator will be furnished to the institute headed by von Ardenne in Dresden.

b. Development of a set designed to measure high frequencies fitted with 6-spark gaps (6-fach-Funkenstrecken) in hydrogen atmosphere. The set is scheduled to be furnished to a Moscow institute and is said to be a copy of an equipment designed by a Stuttgart physicist. Oscillographs are also said to be part of the equipment. Sparks in the 6-fold spark gap (6-fach Funkenstrecke) in H_2 atmosphere are photographed. It appears that the development work is making slow progress.

c. Development of radiation measuring sets and Geiger - Mueller counters.

d. Construction of e[redacted] of 3 MV and an output [redacted] 3,000 KVA testing transformer is scheduled to be completed in 1956. Subsequently, the second and third transformers are to be built. A special group of engineers is charged with this development and the equipment will be delivered to the USSR.

4. No work was being done on the development of standard transformers.

5. The production program o[redacted]uded transformers of various types, direct-voltage and shock potent[redacted]lations, X-ray sets for medical purposes and other similar equipment.

6. Th[redacted]resden had accumulated debts to the amount of 7 million DME, in March. Th[redacted] had stopped buying transformers because of the poor quality of the transformers delivered. The volume of other exports was very low. The scheduled 1955 output expressed in factory sales prices was as follows:

Transformers priced at about	15 million DME
Converters " " "	7 " "
Various installation priced at about	7 " "
X-ray sets priced at about	12 " "
Other type quantity production priced at about	3 " "

Only in [redacted] fields of X-ray sets and quantity produ[redacted] correspo[redacted] the [redacted] hand di[redacted]

7. There was a [redacted] of [redacted]s at the plant. This situation [redacted]ained the po[redacted] the transformers manufactured at the [redacted]

8. [redacted]

(Forschungsinstitut fuer Uebermikroskopie und Physik der Ladungstraeger).

9. [redacted] Comment. For 1955 production plan of [redacted], See Annex 2. 25X1

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25X1

-3-

Annex 1

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[redacted]

Plant manage[redacted]

Technical adviser to the transformer departmen[redacted]
Chief designer of the X-ray equipment departme[redacted]
Chief designer of the transformer department: [redacted]
[redacted] Winter, who was assisted by Brey]
[redacted]
Technical director: v. Se[redacted]
Production chief: Herfort, "main dispatcher"/ production trouble shooter
Main technologis[redacted]
Sales department[redacted]
Chief of the X-r[redacted]
In charge of the quantity pr[redacted] and Bahrmann
Chief of the transformer department: Graichen; chief designer of this department was Lange
Chief of the converter department (Wandler Werk): [redacted]
Chief of the installations department (Anlagenwerk)[redacted]
In charge of the delivery plant: Herfort.

Laboratories used for development work were headed by Dr. Gaebler, Schubert and Dummer. Brey worked as a designer in this development department and Hudelist was technical chief.

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Annex 2

[redacted]

1. Transformers designed for outputs ranging from 100 VA to 100 MVA in about 5,000 different units. The transformers manufactured are not standardized. No rectifying transformers are being built. The different groups of transformers under production have the following reference number:

   11: transformers for transformer plants and for the electric power supply;
   12: mobile transformers mounted on railroad cars;
   13: furnace transformers for smelting furnaces;
   14: testing transformers designed for voltages of up to 1 MV and output of up to 3,000 KVA;
   15: converters of all types.

2. Installations.

   The following reference numbers were in use:

   21: direct voltage installations of up to 3 MV with Greinach (sic) type switching arrangement and not fitted with accelerating tubes. These installations were required f[redacted] of installations and the acceleration of protons and[redacted]
   22: Shock potential installations up to 4 [redacted] MKW/s or 100 K[redacted] The installations were required for the testing of shock volta[redacted] occuring in transformers and high tension installations. The newest installation developed was up to international standards.

3. X-ray sets:

   The following reference numbers were in use:

   31: sets used for diagnostic purposes, fitted with up to 6 tubes.
   32: Therapeutic sets.
   33: VHF radio therapeutic sets.
   34: electric equipment required for surgical purposes.

4. Quantity production.

   The following reference numbers were in use:

   41: w[redacted] 25X1
   42: [redacted] 40,000 units. [redacted] lieved, however, [redacted] produced. (10,000 -
   43: Infra-red sets for medical purposes, scheduled 1955-production 10,000 units.

[redacted] 25X1

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1. In March 1955, development work was under way at the Transformatoren- und Roentgenwerk Dresden (TuR-formerly THARO) on a test transformer for a three-MV installation designed for cascade connection and provided with double-concentric winding in symmetric arrangement. The development of a transformer for 3,000 KVA and 6 kV/1 MV has been completed. The transformer fitted with a double-concentric winding was to be much lighter than the older one and was to have a 30 to 35 percent higher efficiency. Measurements made on the new transformer showed favorable results. Before the transformer was built, a so-called "phantom", that is a model of the transformer at reduced dimensions, was manufactured. Taking into consideration the smaller dimensions - usually the phantom was one-twentieth the size of the transformer to be built - the phantom had to yield the same results as the transformer itself. In the case of the transformer under development at the plant, the phantom tested proved less efficient than expected. The reason for this failure was unexplained. The weight of the transformer in standard size make will be 20 tons. On the basis of the previous design, the weight of such a transformer would have been 35 to 40 tons.
The transformer of cascade stages II and III of the testing installation were not yet completed.

2. A betatron designed for a voltage of 10 megavolts and a radiation intensity of 1 r/m was also under development at the plant. The development work was successfully completed and the output demanded was reached during tests made in March 1955. The betatron was tested for 15 hours without a stop.

According to Dr. Winter, efforts had been made to develop a similar betatron at the Physics Institute at Jena University. In Jena, Professor Dr. Eckart tried for three years to develop a betatron for 1.2 megavolts with a cold cathode. The betatron utilized the basic circuit diagram of the impulse betatron designed by Philips. The development was unsuccessful because of difficulties experienced with the cathode. Professor Eckart is said to be going to develop a 30 megavolt betatron based on a principle applied by the Swiss firm of Brown Boveri & Cie.
Dr. Winter was charged with developing the six-leg core (6-Schenkel-Kern) for this betatron. The designs for this betatron had been completed at the TuR in Dresden. Dr. Winter continuously complained about the unreasonableness of the demands made by Professor Eckart. Eckart was greatly interested in

25X1

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obtaining suitable cathodes for the TuR. Development work was hampered by lack of suitable radiation measuring devices, dosimeters and tube counters.

3. The following development work was also being conducted at TuR:

a. Development of a van de Graaf generator for 2 megavolts, fitted with one accelerating tube.

The generator was completed except for the accelerating tube. Work on the generator was suspended in February 1955 because of a shortage of funds. The generator will be furnished to the institute headed by von Ardenne in Dresden.[2] 25X1

b. Development of a set designed to measure high frequencies fitted with 6-spark gaps (6-fach Funkenstrecken) in hydrogen atmosphere. The set is scheduled to be furnished to a Moscow institute and is said to be a copy of an equipment designed by a Stuttgart physicist. Oscillographs are also said to be part of the equipment. Sparks in the 6-fold spark gap (6-fach Funkenstrecke) in H_2 atmosphere are photographed. It appears that the development work is making slow progress.

c. Development of radiation measuring sets and Geiger - Mueller counters.

d. Construction of e A.C. (sic) testing transformers designed for a voltage of 3 MV and an output of 3,000, 5,000 and 10,000 KVA respectively. The 3,000 KVA testing transformer is scheduled to be completed in 1956. Subsequently, the second and third transformers are to be built. A special group of engineers is charged with this development and the equipment will be delivered to the USSR.

4. No work was being done on the development of standard transformers.

5. The production program of TuR included transformers of various types, direct-voltage and shock potential installations, X-ray sets for medical purposes and other similar equipment.[3]

6. The TuR at Dresden had accumulated debts to the amount of 7 million DME, in March. The USSR had stopped buying transformers because of the poor quality of the transformers delivered. The volume of other exports was very low. The scheduled 1955 output expressed in factory sales prices was as follows:

Transformers priced at about	million 15	million DME
Converters " " "	6 to 7	" "
Various installation priced at about	6 " to 7	" "
X-ray sets priced at about	12	" "
Other type quantity production priced at about	3	" "

Only in the fields of X-ray sets and quantity production did the orders on hand correspond to the production capacity of the plant. Otherwise, orders on hand did not warrant full employment.

7. There was a shortage of skilled workers at the plant. This situation mainly explained the poor quality of the transformers manufactured at the plant.

1. Comment. For organizational set-up of TuR, see Annex 1. 25X1

2. Comment. The institute in Dresden headed by von Ardenne is the Research Institute for Ultramicroscopy and Physics of Charge Carriers (Forschungsinstitut fuer Uebermikroskopie und Physik der Ladungstraeger).

3. Comment. For 1955 production plan of TuR, See Annex 2. 25X1

25X1

Annex 1

Organizational Set-up and Personnel of VEB Transformatoren- u. Roentgenwerk Dresden.

Plant manager: Hermann Famula

Technical adviser to the transformer department: Wuelfling
Chief designer of the X-ray equipment department: Horst Beger
Chief designer of the transformer department: Bahrmann
Chief of the development department: Dr. Winter, who was assisted by Brey
Business manager: Guenther Zimmermann.
In charge of labor affairs: Alfred Kessner
Technical director: v. Schiessl
Production chief: Herfort, "main dispatcher"/ production trouble shooter
Main technologist: (unknown)
Sales department: Victor Dunkel, who was assisted by Kohl and Beger
Chief of the X-ray department: Willy Protz
In charge of the quantity production: Hudelist and Bahrmann
Chief of the transformer department: Graichen; chief designer of this department was Lange
Chief of the converter department (Wandler Werk): Neubert
Chief of the installations department (Anlagenwerk): Kurt Zirkel
In charge of the delivery plant: Herfort.

Laboratories used for development work were headed by Dr. Gaebler, Schubert and Dummer. Brey worked as a designer in this development department and Hudelist was technical chief.

Production Program of the VEB Transformatoren- u. Roentgenwerk Dresden as of March 1955.

1. Transformers designed for outputs ranging from 100 VA to 100 MVA in about 5,000 different units. The transformers manufactured are not standardized. No rectifying transformers are being built. The different groups of transformers under production have the following reference number:

   11: transformers for transformer plants and for the electric power supply;
   12: mobile transformers mounted on railroad cars;
   13: furnace transformers for smelting furnaces;
   14: testing transformers designed for voltages of up to 1 MV and output of up to 3,000 KVA;
   15: converters of all types.

2. Installations.

   The following reference numbers were in use:

   21: direct voltage installations of up to 3 MV with Greinach (sic) type switching arrangement and not fitted with accelerating tubes. These installations were required for the testing of installations and the acceleration of protons and deuterons
   22: Shock potential installations up to 4 MV and 100 MKW/s or 100 KW/as. The installations were required for the testing of shock voltage occuring in transformers and high tension installations. The newest installation developed was up to international standards.

3. X-ray sets:

   The following reference numbers were in use:

   31: sets used for diagnostic purposes, fitted with up to 6 tubes.
   32: therapeutic sets.
   33: VHF radio therapeutic sets.
   34: electric equipment required for surgical purposes.

4. Quantity production.

   The following reference numbers were in use:

   41: washing machines, [redacted] 25X1
   scheduled 1955 production, 40,000 units;
   42: steel cases (Stahlbaukasten) scheduled 1955 production 40,000 units. It was believed, however, that only 10,000 - 15,000 units would be produced.
   43: Infra-red sets for medical purposes, scheduled 1955 production 10,000 units.